REMARKS

Claims 1-32 are pending in the application and stand rejected under §102(e) and §103(a) in view of one or more of the following references: Ben-Porath, et al. (U.S. Patent No. 6,987,873), Herod, et al. (U.S. Patent No. 7,206,442), and Sakai, et al. (U.S. Patent No. 7,142,708).

Claims 4 and 23 have been amended to correct syntax errors in the claims as filed. Such corrections should not result in a narrowing of the claims or need for a further prior art search. All claims remain in the case for consideration.

Applicant requests reconsideration and allowance of the claims in light of the above amendments and following remarks.

Double Patenting

Claims 15-28 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-27 of copending Application No. 10/749,670. As this issue is not yet ripe, Applicant will address this issue at the proper time.

Claim Rejections

Ben-Porath (U.S. Pat. No. 6,987,873)

Claims 1-2, 5-6, 8-14 and 29-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Ben-Porath, et al. (U.S. Patent No. 6,987,873). Claims 7 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ben-Porath.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ben-Porath in view of Herod, et al. (U.S. Patent No. 7,206,442).

Independent claims 1 and 29 teach a micro-analysis approach to determining defective "pixels" while Ben-Porath takes a macro approach by comparing measured defect images with reference images in order to identify and classify the defect. As a result, Ben-Porath fails to teach the following elements:

CLAIM 1:

- Forming first image data for each pixel on each device;
- Marking a pixel corresponding to the first image data as a defective pixel when the first image data corresponds to the second image data;

CLAIM 29:

- A marking unit for marking a pixel as defective when the digital image data of the pixel is substantially identical to the threshold value.

Turning to claim 1, Ben-Porath is incapable of identifying, on a pixel-by-pixel basis, which pixel elements are defective. The advantage of pixel defect analysis is, as stated in the Application, to "prevent various defects from being detected together." [Application, page 8, lines 27-28]

Given Ben-Porath's method of identifying defects by comparing a scan with reference images, it would difficult to determine how the teaching of Ben-Porath can be applied to analysis of a single pixel. Furthermore, the Ben-Porath image data may identify bright and dim features of the area of the defect [see, e.g., col. 8, lines 60-62], but it is clear from the figures that Ben-Porath takes a macro approach to identifying defects.

In contrast, the first and second data correspond to a single pixel to assist in identifying whether the pixel is defective or not.

Turning to claim 29, Ben-Porath does not talk in terms of threshold values for a single pixel. Applicant discloses examples of such second image data, which may be defined as (a) a specific binary digit, or (b) a range defined by upper and lower limits. [Application, page 8, lines 18-19] There is no clear teaching that either of these is taught in Ben-Porath. Furthermore, it is clear that normal pixel analysis in the conventional art determines defects using a minimum threshold—that is, the pixel is characterized as a defect if the measured brightness differential is greater than a lower limit. There is no teaching that defects are identified where the first image data for the pixel is substantially identical to the second image data. It is certainly clear that Ben-Porath does not talk in terms of ranges between upper and lower limits for the single pixel (Ben-Porath FIG. 8a, referenced by the Examiner, looks at the macro structure of the defect).

The Herod reference does not make up for the deficiencies noted above. Accordingly, reconsideration and allowance of claims 1-14 and 19-32 is respectfully requested.

Sakai (U.S. Pat. No. 7,142,708)

Claims 15-16, 19-24 and 27-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakai, et al. (U.S. Patent No. 7,142,708).

Claims 17-18 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai in view of Herod, et al. (U.S. Patent No. 7,206,442).

Independent claim 15 includes the following limitations:

- comparing a defect size of the second differential image data of the target pixel with a reference size range of a specific defect;
- forming a third differential image data of the target pixel when the second differential image data of the target pixel is ***within the reference size range*** of the specific defect; and
- marking the target pixel corresponding to the third differential image data as a defective pixel.

Sakai discloses in FIG. 5 an inspecting apparatus that includes an image comparing unit 508 and a defect judging unit 509 as the last two functional blocks. Image comparing unit 508 determines whether a difference image signal value is larger than a specific threshold value. Those defects having signals larger than the threshold value are noted as defect candidates and passed along to defect judging unit 509.

The defect judging unit 509 is disclosed as having two functions. First, unit 509 edits each of the defect candidates by "deleting of a small defect candidate as a noise, and the merging of adjacent defect candidates as one defect." [Sakai, col. 7, lines 19-22] Next, unit 509 "calculates a characteristic amount such as a position, an area, and a size in a wafer, and then outputs them as final defects." [Sakai, col. 7, lines 22-25]

There is no disclosure within Sakai that a "reference size range" is considered, or that "a third differential image data of the target pixel [is formed] when the second differential image data of the target pixel is within the reference size range of the specific defect." In fact, the defect judging unit only appears to delete the smaller defects rather than judge or categorize by size range. Sakai only suggests that the defect candidates are output en mass for display on a video screen irrespective of whether they fit within any particular size criterion.

Although the Examiner states in the Office Action that a reference size range is implicated, the pertinent section noted by the Examiner (Sakai, col. 7, lines 50-52) states only that "the area of the defect is detected" if the difference value is $\geq$ the threshold value TH. While Sakai detects the area of the defect, there is no disclosure suggesting that the area is compared to a range or the like.

As Sakai does not compare a defect size with a reference size range, does not form a third differential image data when defect is within the size range, and does not mark target pixels corresponding with the third differential image data as a defective pixel, then claim elements are

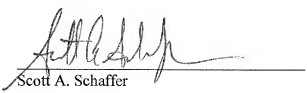
missing and rejection under §102(b) is improper as a matter of law. Reconsideration and allowance of claims 15-22 is thus respectively requested. Furthermore, as claims 23-28 implicate a reference setting unit for setting a reference size range, and as Sakai does not teach such a unit or a function, then reconsideration and allowance is also requested concerning claims 23-28. And regarding claims 17-18 and 25-26, the Herod reference does not make up for the deficiencies of the Sakai reference. Therefore, rejection under §103(a) also fails as a matter of law.

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1-32 of the application as amended is requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

MARGER JOHNSON & McCOLLOM, P.C.



Scott A. Schaffer
Reg. No. 38,610

MARGER JOHNSON & McCOLLOM, P.C.
210 SW Morrison Street, Suite 400
Portland, OR 97204
503-222-3613
Customer No. 20575